

Content

Invited Papers

- [I01] **Multi-scaled heterogeneities in elasto-plastic deformation and microstructure in steels**
Yo Tomota -----1
- [I02] **Current developments in quenched and partitioned steels**
Emmanuel De Moor, Joonas Kähäkönen, Preston Wolfram, John G. Speer ----- 11
- [I03] **Carbon partitioning during quenching and partitioning heat treatment**
Yuki Toji, Horoshi Matsuda, Goro Miyamoto, Michael Herbig, Pyuch-Pa, Choi,
Dierk Raabe ----- 19
- [I04] **Carbon supersaturation and clustering in bainitic ferrite at low temperature**
Rosalia Rementeria, Jonathan D. Poplawsky, Esteban Urones-Garrote,
Ricardo Domínguez-Reyers, Carlos Garcia-Mateo, Francisca G. Caballero -----29
- [I05] **Transformation mechanism of diffusional reversion from lath martensite to austenite**
Nobuo Nakada, Toshihiro Tsuchiyama, Setsuo Takaki -----35
- [I06] **Multi-phase-field simulation of austenite-to-ferrite transformation in Fe-C-Mn and Fe-C-Mn-Si alloys**
Akinori Yamanaka, Masahiro Segawa, Takahiko Kohtake, Raika Yada,
Sukeharu Nomoto -----43
- [I07] **Quantitative and microscopic analytical technique of trace carbon and its application on microstructural analysis of dual phase steels**
Yuji Tanaka, Takako Yamashita, Masayasu Nagoshi -----49
- [I08] **Ferrite growth rate estimated from concentration profile measured using aberration corrected STEM-EELS**
Takafumi Amino, Genichi Shigesato, Takayuki Nozaki, Masafumi Azuma -----55

[I09]	Thermodynamic study of grain boundary segregation Hiroshi Ohtani, Masanori Enoki -----	65
[I10]	Grain boundary character analysis by correlative transmission electron microscopy / atom probe tomography Carlos Parra, Michael Herbig, Dierk. Raabe -----	71
[I11]	Influence of grain boundary segregation on temper embrittlement of Cr-Mo heat resistant steel weld metal and quantitative analysis of the amount of segregated atoms Hidenori Nako*, Genichi Taniguchi, Su-Qin Zhu, Simon P. Ringer -----	77
[I12]	Post-uniform elongation and tensile fracture of TWIP steels Seon-Keun Oh, Young-Kook Lee -----	83
[I13]	Change in microstructure and hydrogen embrittlement resistance with low temperature aging of drawn pearlitic steel and its proposed mechanism Daisuke Hirakami, Kosaku Ushioda, Toshiyuki Manabe, Kei Noguchi, Kenichi Takai, Yoshinori Hata, Satoshi Hata, Hideharu Nakashima -----	89
[I14]	Phosphorus-assisted delamination toughening in high-strength steel Yuuji Kimura, Xiaohua Min, Takashi Kimura, Kaneaki Tsuzaki -----	97

Contributed Papers

[P01]	First-principles calculation of tetragonality and atomic interactions in Fe-C systems Hideyuki Ohtsuka, Zhufeng Hou, Kaneaki Tsuzaki -----	105
[P02]	Effect of strain rate on hydrogen embrittlement susceptibility of tempered martensitic steel Yuji Sakiyama, Tomohiko Omura, Kazuki Sugita, Masataka Mizuno, Hideki Araki, Yasuharu Shirai -----	109

[P03]	Effect of crystallographic texture on anisotropy of mechanical properties in high-strength martensitic steel	113
	Hirofumi Ohtsubo, Shigeki Kitsuya, Noriki Fujita, Kazukuni Hase -----	
[P04]	Effect of ausforming deformation on creep strength of G91 steel	117
	J. Vivas, C. Capdevila, M. Serrano, E. Altstadt, D. San Martín, -----	
[P05]	Tempering behavior of iron-nitrogen-based martensite	123
	Mitsutaka Sato, Tadashi Furuhashi -----	
[P06]	Phase-field simulation of the effect of yield stress on the martensitic transformation in low-carbon steels	127
	Yuhki Tsukada, Emi Harata, Toshiyuki Koyama -----	
[P07]	Effect of diffusion annealing on microstructure and mechanical properties of ultra-high strength martensitic wear-resistant cast steel	131
	Zhongzheng Pei, Renbo Song, Jie Xu, Li Wang -----	
[P08]	The role of Nb in Q-P-T process in martensite/austenite microstructures	135
	Erding Wen, Renbo Song, Feng Gao, Li Wang -----	
[P09]	The complementarity between combinatorial screening and fundamental understanding in exploratory research: a case study on lean maraging steels	139
	Laura Moli Sanchez, Nele Van Steenberge, Pedro Marques Spinoza De Andrade, Lode Duprez -----	
[P10]	Resistance to temper softening of microalloyed low carbon steels	143
	Yongjie Zhang, Chao Zhao, Goro Miyamoto, Kunio Shinbo, Tadashi Furuhashi -----	
[P11]	<i>In situ</i> tracking of kinetics for phase transformations during Q&P process below Ms in 0.3C-2Mn-2Si steel	147
	Wu Gong, Stefanus Harjo, Ruixiao Zheng, Yo Tomota, Tomoya Shinozaki, Nobuhiro Tsuji -----	

[P12]	Characterization of microstructure using Bragg edge and energy-resolved small-angle neutron scattering	
	Yojiro Oba, Satoshi Morooka, Kazuki Ohishi, Jun-ichi Suzuki, Toshihiro Tsuchiyama, Elliot Paul Gilbert -----	151
[P13]	In-situ EBSD analysis on reverse transformation behavior of Fe-Ni-C alloys	
	Natsumi Ooura, Suguru Nishinomiya, Kazuki Fujiwara, Kaori Kawano, Nobuhiro Tsuji -----	155
[P14]	Characterization of microstructural evolution during reverse transformation in a tempered martensite low-alloy steel	
	T. Shinozaki, Y. Tomota, S. Harjo, W. Gong -----	159
[P15]	Origins of diffraction profile line broadening of ferrite-cementite steels	
	Yanxu Wang, Yo Tomota, Takahito Ohmura, Wu Gong, Stefanus Harjo -----	163
[P16]	Prior austenite grain boundaries in lath martensite: correlation between the crystallographic character and the fracture susceptibility	
	Fady Archie, Stefan Zaefferer -----	167
[P17]	How does the cold-worked Fe-Ni-Al-C alloy obtain its large ductility? -Tensile behavior at various temperatures-	
	I. Miyazaki, T. Furuta, T. Nakagaki, S. Kuramoto, A. Shibata, N. Tsuji -----	171
[P18]	Interaction between a C/N atom and an edge dislocation in bcc iron analyzed by molecular dynamics simulation	
	Katsutoshi Hyodo, Satoshi Araki, Shinji Munetoh, Toshihiro Tsuchiyama, Setsuo Takaki -----	175
[P19]	First experimental evidence of de-twinning during reverse loading of TWIP steel	
	Scott J. McCormack, Azdiar A. Gazder, Elena V. Pereloma, Ahmed A. Saleh, -----	179
[P20]	Toughness prediction model of tempered martensitic steels	
	Tetsuya Namegawa, Manabu Hoshino, Masaaki Fujioka, Masanori Minagawa -----	183

[P21]	Deformation mechanism of ultrafine-grained high-Mn TWIP steels	
	Yu Bai, Hiroki Kitamura, Sukyoung Hwang, Satoshi Yamauchi, Yanzhong Tian, Akinobu Shibata, Nobuhiro Tsuji -----	187
[P22]	A study of cyclic deformation response and dislocation structure evolution during extreme low cycle shear fatigue of TWIP steel	
	Dayong An, Stefan Zaeferrer -----	191
[P23]	The effect of precipitation state on strength and toughness of precipitation hardened hot rolled steel sheet	
	Takafumi Yokoyama, Shunsuke Taniguchi -----	195
[P24]	Influence of grain refinement on microstructural damage in DP1300 steel	
	Javad Samei, Linfeng Zhou, Jidong Kang, David S. Wilkinson -----	199
[P25]	Ferrite phase analysis based on low-angle grain boundary density in low carbon linepipe steel	
	Yong-hwan Cho, Jaeun Lee, Donguk Kim, Juseok Kang, Wung Yong Choo, Heung Nam Han -----	203
[P26]	Distribution behavior of C and Mn among the matrix phase and martensite-austenite constituent in the heat-affected zone of a low alloy carbon steel	
	Masahiko Inomoto, Hidenori Nako -----	207
[P27]	In-situ SEM/EBSD observation of hydrogen-assisted cracking of ultra-fine grained austenite	
	Arnaud Macadre, Toshihiro Tsuchiyama, Setsuo Takaki -----	211
[P28]	Investigation of relationship between microstructure and tensile properties in hydrogen environment using Cr-Mo steels	
	Hiroshi Okano, Shusaku Takagi, Akihide Nagao, Nobuyuki Ishikawa -----	215

- [P29] **Effect of grain boundary on the plastic deformation in Fe-C alloys**
Katsuya Nakano, Kunio Hayashi, Kengo Takeda, Seiichiro Ii, Takahito Ohmura -----219
- [P30] **Crack formation and propagation mechanism in the punching process of hot-rolled high tensile strength steel sheet**
Kazuhiko Yamazaki, Takehiro Okano, Chikara Inoue, Sota Goto, Takeshi Yokota,
Shinsuke Suzuki -----223
- [P31] **Development of multilayered steels consisting of medium-high carbon steels for improved strength-ductility combinations**
Shoichi Nambu, Junya Inoue, Toshihiko Koseki -----227

Author Index